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Relationship Between Spiritual Well-Being and Hope in Patients with Cardiovascular Disease

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Abstract Spirituality and hope have been identified as important constructs in health research, since both are thought to enhance a person's ability to cope with the consequences of serious illness. The aim of this study was to examine the relationship between spiritual well-being and hope in patients with cardiovascular disease. Using descriptive, correlational methodology, the investigator gathered data on a convenience sample of 500 patients with cardiovascular disease who were hospitalized in a medical institution in Iran. The study was conducted over a four-month period. Participants completed a demographic questionnaire, the Spiritual Well-Being Scale (SWBS) and the Herth Hope Index (HHI). The mean score on the SWBS and HHI was 86.21 (SD 12.46) and 34.80 (SD 5.05), respectively. Multivariate predictors for spiritual well-being were female gender ($p = 0.047$), religiosity ($p = 0.018$), and hope ($p < 0.001$). Significant predictors of hope were marital status ($p < 0.001$), educational status ($p < 0.001$), economic status ($p < 0.001$), and spiritual well-being ($p < 0.001$). Findings suggest that multiple factors

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may impact spiritual well-being and hope. Therefore, this study has implications for those providing care to patients with cardiovascular disease.

Keywords Spirituality · Hope · Cardiovascular disease · Iran

Introduction

At the beginning of the twentieth century, cardiovascular diseases (CVD), a collective term for diseases of the heart and blood vessels, caused less than 10% of adult mortality (Gaziano et al. 2010; Jamison et al. 2006). However, over the last century, the number of people suffering from CVD and the overall impact of these diseases on death rates has increased dramatically. For instance, approximately 1.1 million cases of myocardial infarction (a common CVD) occur each year in the USA alone with the rate of mortality reported to be close to 30% (Longo et al. 2011; Parizad et al. 2014). Moreover, in Iran, CVD is also regarded as the most common causes of death in the adult population (Ghaffari et al. 2013).

Numerous factors have been identified through research that are relate to the incidence of CVD. Known health risks such as high blood pressure, high cholesterol, smoking, diabetes, and lack of sufficient exercise are among the related factors (Mangiapane 2013; Sharifirad et al. 2007). In addition, in all industrialized countries, evidence suggests that CVD correlates with socioeconomic status and level of education. That is, the higher the socioeconomic status and level of education, the lower the incidence of CVD (Squires 2000). Personality type A as well as a lack of social support may also affect the prevalence of CVD (Shumaker and Czajkowski 2013).

Previous empirical research has shown that CVD is associated with a number of negative psychological consequences, such as anxiety and depression. Research has found that the experience of anxiety for patients with CVD negatively impacts their physical and psychological recovery (An et al. 2004). Depression and exhaustion for CVD patients has been found to lead to a reduction in social and physical activities (Khademvatani et al. 2015; Yeganeh khah et al. 2012). Therefore, attending to psychological as well as physical consequences associated with CVD is essential for patient recovery.

The literature on CVD and coping outlines several empirical strategies that have been found to reduce negative psychological squeal associated with CVD (Khademvatani et al. 2015). In many populations, spirituality is associated with better mental and physical health (Osarrodi et al. 2012). Spirituality refers to the experience of positive feelings as a result of one's ability to experience meaning and purpose in life through his or her connectedness with the self, others and with a higher power. Spirituality is a multifaceted dynamic processes that involves cognitive, functional, and emotional domains (Abbasi et al. 2013). Spirituality, within the context of well-being, is not limited to prayer or mindset and does not suggest that conventional medical treatments should be replaced by religious practices. Rather, spiritual well-being (SWB) encompasses spiritual vision, values, beliefs, and behaviors (Marandi and Azizi 2011).

SWB can be an integral element in how an individual may cope with and recover from CVD. Research has found that SWB has been positively associated with an individual's sense of identity, feelings of integrity, peace, and inner balance, general life satisfaction, happiness, a positive attitude, and a perceived purpose in life (Dehbashi et al. 2015). Given the empirical evidence for SWB and improved health and well-being, although SWB is not

a treatment for CVD, it is an important consideration for assisting patients to cope with and prevent further health-related issues (Yi et al. 2006).

Hope and hopefulness are another construct that has also been found in the literature to have a central role as a coping strategy for managing stress and disease such as CVD. Hope is described as a positive feeling of anticipation that involves imagination and attention to the future (Dehbashi et al. 2015). An individual's hopefulness has been found to be positively associated with an individual's sense of a purposeful and meaningful life (Halama and Dedová 2007). Therefore, hope has been identified as a significant factor that assists with an individual's ability to adapt to and cope with a serious illness (Folkman 2013). It has also been found to reduce the incidence of psychological distress and mental illness, and improve the quality of life (Baljani et al. 2011).

Culture is a factor that is related to spirituality, hopefulness, and religiosity (Baljani et al. 2011). *Religiosity* is often defined as an individual's conviction, devotion, and veneration toward a divinity. However, in its most comprehensive use, religiosity can encapsulate all dimensions of religion, yet the concept can also be used in a narrow sense to denote an extreme view and over dedication to a religious ritual or tradition (Gallagher and Tierney 2013). In Islam, "spirituality is not separate from religion; it is rather its inner dimension" (Ahmad et al. 2011, p. 37). According to this view, religion is expressed in prescribed religious activities and provides a roadmap to one's purpose in life, that is, to live continuously in relationship with God. The population in Iran is predominantly practicing Muslims, and such strong held religious beliefs underpinning a cultural context can influence an individual's spiritual and religious experiences. A secure attachment to God has been found to have a positive influence on physical and mental health. Therefore, cultural context should play an important role in how SWB and hopefulness are understood and enhanced within clinical settings.

Some studies have provided support for the positive relationship between SWB and hope in chronic health conditions, such as CVD (Baljani et al. 2011; Dehbashi et al. 2015). However, other research has been unable to identify positive correlations between these variables (Vellone et al. 2006). It is assumed that having SWB, feeling the presence of God, and believing in his support may have a positive effect on the hopefulness of patients with CVD. Therefore, the present study aimed to examine the relationship between SWB and hope in patients with CVD.

Methods

Participants

A descriptive, cross-sectional correlational design was used to examine the relationship between SWB and hope. A convenience sampling approach was adopted and drew from patients who were hospitalized in Bo Ali Sina hospital over a four-month period (i.e., between May and August 2016). This hospital was a specialized, governmental, and referral center in Qazvin city, Iran.

In addition, survey participants were vetted using the following inclusion criterions: Each participant must have (1) documented CVD based on ECG results and other forms of universally accepted medical diagnosis technique(s) carried out by qualified doctors; (2) have not exhibited signs of known psychological problems or disorders such as anxiety and depression for a period of at least four weeks prior to our survey date, (3) have stable vital

signs, and (4) have been hospitalized for at least 24 h. Our final sample consisted of 500 respondents, and the overall response rate is 76.7%.

Instruments

Our questionnaire consisted of main three sections that focus on the following aspects: (1) questions eliciting basic demographic information, (2) the Spiritual well-being Scale (SWBS), and (3) the Herth Hope Index (HHI). More specifically, items in the first section were used to gather information about each patient's age, gender, marital status, level of education, socioeconomic status, and main source of income. Other items were used to elicit social support and religious belief. The perceived level of social support and religiosity was adapted and simplified from empirically validated survey scales developed by nursing researchers to avert potential burden to respondents due to their present health condition (Soleimani et al. 2016a). For each item within the utilized measurement scales, we asked participants to rate them using a 10-point Likert-type scale. For example, we required participants to evaluate the strength of their religious belief from 1 to 10 (1 = the weakest, 10 = the strongest) and the amount of social support received from 1 to 10 (1 = the least, 10 = the most).

Spiritual Well-Being Scale (SWBS)

The SWBS is a 20-item scale designed by Paloutzian and Ellison (1982) designed to assess perceived well-being at an individual or congregational level. It provides an overall measure of the perception of spiritual quality of life and consists of two subscales: religious and existential well-being. The religious well-being subscale (10 items) provides a self-assessment of one's relationship with God, while the existential well-being subscale (10 items) gives a self-assessment of one's sense of life purpose and life satisfaction (Paloutzian and Ellison 1982). SWBS uses a six-point Likert scale that ranges from completely disagree (1) to completely agree (6). A reversed scoring method was used for negative items (6–21, 28–32, and 34–50). The range of scores for each of the religious and existential subscales was between 10 and 60. A higher score indicated higher religious and existential health. Validity and reliability of the Paloutzian and Ellison's SWBS has been well established in the literature (Soleimani et al. 2016b, c). For this study, internal consistency reliability was measured using Cronbach's alpha ($\alpha = .760$).

Herth Hope Index (HHI)

The HHI is a 12-item abbreviated version of the Herth Hope Scale (HHS) measuring multidimensional aspects of hope based upon Dufault and Martocchio's conceptual framework of hope. Participants were asked to place an "X" in the box that applied to how much they agreed with each item using a Likert scale (1 = strongly disagree to 4 = strongly agree). Total HHI score ranges from 12 to 48 with higher scores corresponding to higher levels of hope (Herth 1992). Validity and reliability of the present scale was confirmed by past research (Baljani et al. 2011; Pour Ghaznain and Ghafari 2005). In the present study, ten experts confirmed content validity of the present scale. Cronbach's alpha for the 12-item HHI was .796 indicating satisfactory internal consistency.

Ethical Consideration

The current study was approved by Qazvin University's medical sciences ethics committee (QUMS.REC.1394.10). Patients were informed about study aims and procedures, that participation was voluntary, and would not affect medical care before signing an informed consent document. Patient confidentiality was assured by completing all study procedures in a quiet treatment area. To ensure that a broad cross section of patients were allowed to participate in the study, a trained research assistant provided support as needed. All personal data were de-identified with the use of assigned codes.

Statistical Analysis

The Statistical Package for Social Sciences, version 20.0 (SPSS Inc, Chicago, Illinois), was used to analyze data. All demographic variables were summarized using frequencies and percentages for categorical variables as well as mean and standard deviation (SD) for ratio scale variables. Pearson correlation analysis was used to examine the relationship between the main variables. The predictors associated with SWB and hope scores were determined using general linear models with Bonferroni corrections for pairwise comparisons. Statistical significance was set at $p < 0.05$ for all procedures.

Results

Table 1 describes the demographic profiles of the respondents. The finding of this table shows 52.4% ($n = 262$) percent of the patients were female. The respondents were predominately married ($n = 406$, 81.2%). More than half of the sample ($n = 266$, 53.2%) reported no formal education and a middle range of income ($n = 353$, 70.6%).

The mean score for the SWB was 86.21 (SD 12.46). The score reflects higher than moderate levels of spiritual well-being among the patients with CVD. The mean total score for hope was 34.80 (SD 5.05; range 23–46), which indicated a moderate level of hope. Spiritual well-being was related to religious belief ($r = .110$, $p < 0.05$). In addition, relationships between the social support and hope ($r = .160$, $p < 0.001$) and age ($r = .121$, $p < 0.05$) were significant. Moreover, there was a weak significant correlation between religious belief and social support ($r = .107$, $p < 0.05$).

Predictors of Spiritual Well-Being (SWB)

Multivariate predictors for SWB were gender (in favor of females), religious belief (0.99, 95% CI 0.17–1.80, $p = 0.018$), and hope (0.90, 95% CI 0.68–1.13, $p < 0.001$) (Table 2).

Predictors of Hope

Multivariate analyses found significant predictors of hope: marital status, level of education, socioeconomic status, and total SWB (Table 3). There was a positive correlation between total SWB (0.12, 95% CI 0.09–0.16, $p < 0.001$) with hope. Married subjects and those with collegiate education had better hope and socioeconomic status. Trends in relationships were observed for age (positive) and income source from charitable giving (negative).

Table 1 Demographic characteristics of the study participants

Demographic characteristics	Number (%)
Sex	
Male	238 (47.6)
Female	262 (52.4)
Marriage	
Married	406 (81.2)
Widowed/divorced	94 (18.8)
Educational status	
No formal education	266 (53.2)
Primary	19 (21.8)
Intermediate	58 (11.6)
High school	55 (11)
Collegiate	12 (2.4)
Economic status	
Poor	127 (25.4)
Average	353 (70.6)
Good	20 (4)
Main source of income	
Personal	211 (42.2)
Family	32 (6.4)
Friends	5 (1)
Pension from the government	203 (40.6)
Charitable giving	49 (9.8)
Death experiences	
Yes	17 (3.4)
No	483 (96.6)
	Mean (SD), range
Age	
Age of subject	60.68 (10.34), 30–96
Social support	
Social support of subject	5.92 (2.58), 1–10
Religious belief	
Religious belief of subject	9.06 (1.14), 0–10
Spiritual well-being	
Total SWB	86.21 (12.46), 40–116
Hope	
Total hope	34.80 (5.05), 23–46

Discussion

The study was conducted to examine relationships between SWB and hope and factors predictive of these two constructs in Iranian patient with CVD. The results indicated positive significant relationship between SWB and hope. These findings are supported by

Table 2 Predictors of SWB

	SWB Mean (SD)	Unadjusted p value	Adjusted p value
Sex			
Male	84.88 (12.30)	0.023	0.047
Female	87.41 (12.51)		
Marriage			
Married	86.31 (12.77)	0.695	0.257
Widowed/divorced	85.75 (11.11)		
Educational status			
No formal education	86.44 (11.10)	0.967	0.974
Primary	86.05 (13.27)		
Intermediate	85.07 (13.13)		
High school	85.49 (15.42)		
Collegiate	87.83 (16.67)		
Economic status			
Poor	83.91 (9.81)	0.055	0.905
Average	86.97 (13.20)		
Good	87.25 (12.85)		
Main source of income			
Personal	86.60 (13.24)	0.498	0.394
Family	86.12 (10.93)		
Friends	80.60 (8.61)		
Pension from the government	86.56 (12.81)		
Charitable giving	83.69 (7.93)		
Death experiences			
Yes	87.70 (12.62)	0.615	0.728
No	86.15 (12.47)		
		b (95% CI)	b (95% CI)
Age			
Age of subject	60.68 (10.34)	−0.02 (−0.13 to 0.08) $p = 0.666$	−0.04 (−0.18 to 0.10) $p = 0.543$
Social support			
Social support of subject	5.92 (2.58)	0.21 (−0.21 to 0.63) $p = 0.331$	0.19 (−0.50 to 0.53) $p = 0.941$
Religious belief			
Religious belief of subject	9.06 (1.14)	0.96 (0.20 to 1.74) $p = 0.014$	0.99 (0.17 to 1.80) $p = 0.018$
Hope			
Hope of subject	34.80 (5.05)	0.82 (0.62 to 1.03) $p < 0.001$	0.90 (0.68 to 1.13) $p < 0.001$

Adjusted $R^2 = 0.118$

SD standard deviation, *b* regression estimate, *CI* confidence interval

Table 3 Predictors of hope

	Hope Mean (SD)	Unadjusted *p* value	Adjusted *p* value
Sex			
Male	35.11 (5.21)	0.186	0.652
Female	34.51 (4.89)		
Marriage			
Married	35.32 (.24)	<0.001	<0.001
Widowed/divorced	32.56 (.47)		
Educational status			
No formal education	34.21 (4.96)	<0.001	<0.001
Primary	35.11 (4.90)		
Intermediate	34.84 (4.53)		
High school	35.52 (5.49)		
Collegiate	41.66 (3.14)		
Economic status			
Poor	32.22 (4.54)	<0.001	<0.001
Average	35.59 (4.85)		
Good	37.25 (5.84)		
Main source of income			
Personal	34.54 (5.07)	<0.001	0.066
Family	33.84 (4.41)		
Friends	37.60 (6.65)		
Pension from the government	35.91 (4.96)		
Charitable giving	31.65 (3.96)		
Death experiences			
Yes	37.70 (4.90)	0.016	0.387
No	34.70 (5.03)		
		b (95% CI)	b (95% CI)
Age			
Age of subject	60.68 (10.34)	0.02 (−0.03 to 0.06) $p = 0.441$	0.05 (−0.01 to 0.10) $p = 0.053$
Social support			
Social support of subject	5.92 (2.58)	0.31 (0.14 to 0.48) $p < 0.001$	−0.08 (−0.27 to 0.11) $p = 0.401$
Religious belief			
Religious belief of subject	9.06 (1.14)	−0.10 (−0.41 to 0.22) $p = 0.537$	−0.01 (−0.31 to 0.30) $p = 0.953$
Spiritual well-being			
Total SWB	86.21 (12.46)	0.14 (0.10 to 0.17) $p < 0.001$	0.12 (0.09 to 0.16) $p < 0.001$

Adjusted $R^2 = 0.262$

SD standard deviation, *b* regression estimate, *CI* confidence interval

past research that has also found similar significant correlations between SWB and hope in cancer and hemodialysis patients (Baljani et al. 2011; Fehring et al. 1997; Jafari et al. 2010). Wills (2007) also investigated hope alongside spirituality variables (relationship with self and relationship with others). Willis concluded that hope predicted multiple aspects of well-being, including SWB (Wills 2007). It may be that a sense of hope is an important coping strategy for those faced with acute and chronic conditions. Likewise, believing in God may also have merit as a powerful coping tool (Baljani et al. 2013). In addition, establishing spiritual relationship with boundless power will ensure patients that always strong existence (God) support and protect him/her. Individuals with high SWB encounter with problems related to the illness more easily and are less subjected to the anxiety and stress (Soleimani et al. 2016c, d) as well. Also, the nature of CVD makes patients seeking the way to preserve the hope in threatening condition. In that situation, spirituality needs emerged increasingly (O'brien 2013).

The findings of the present study suggest that SWB in Iranian patients with CVD is higher than moderate. This is supported in several studies (Jadidi et al. 2011; Rezaei et al. 2009). Other research has also found that Iranian patients with multiple sclerosis (Allahbakhshian et al. 2010), cancer (Baljani et al. 2011), and hemodialysis (Taheri kharameh et al. 2013) have also reported moderate level of SWB. In contrast with the present findings, one study conducted on cancer patients revealed lower scores of SWB (Moghimian and Salmani 2012).

The current study also found that females reported higher SWB than males. This is similar to past research that has also found positive correlations between gender and SWB, in favor of females (Kaczorowski 1989). In contrast, other studies conducted on hemodialysis and cancer patients found higher SWB in men (Büssing et al. 2007; Dehbashi et al. 2015), while some studies reported no differences between gender and spirituality at all (Allahbakhshian et al. 2010; Highfield 1992). An explanation for the mixed results observed in the literature could be related to cultural context. As discussed in "Introduction" of this paper, cultural context plays an important role in how spirituality is expressed, irrespective of gender. Given that spirituality is associated with positive health outcomes for women and men, further research investigating gender differences in SWB is needed (Musgrave et al. 2002).

Many spiritual resources come from women's own experience, the recognition of their inner power and strength, and their need to create rituals which address the different stages and resultant crises of women's lives (King 1995). It is believed that women's spirituality significantly influences what they think and believe. Spirituality is associated with positive health outcomes for women and help to improve perception of health status (Musgrave et al. 2002).

The present study also found that religious belief is another factor that predicts SWB. Other studies also investigating chronic health conditions in patients and healthy populations have also reported similar findings (McFarland 2009; Morgan et al. 2006). For example, Yi et al. (2006) found that religiosity was significantly and positively related to an individual's sense of well-being and spirituality. Taken together, this finding may suggest that religiosity and spirituality provide a framework for making sense of the world and coping with life stressors such as CVD (Musgrave et al. 2002). Spirituality and religiosity may contribute to a sense of life purpose and meaning for patients with chronic and acute health conditions (Tse et al. 2005).

This study also identified that hope is a factor that may influence an individual's SWB. This means that higher levels of hope are associated with higher SWB for the participants examined in the study. This is congruent with results from other studies. For example,

Baljani et al. (2011), Moghimian and Salmani (2012), and Lynette and Gibson (2003) reported similar findings in participant populations with chronic conditions (Baljani et al. 2011; Lynette and Gibson 2003; Moghimian and Salmani 2012). Hope and hopefulness therefore may have important therapeutic implications for patients' coping skills (Duggleby et al. 2009). In other words, the positive correlation found between hope and SWB may have clinical implications for patients facing life-threatening events and illness (Jafari et al. 2010. Within the Islamic context of Iran, patients may feel the presence of God (SWB), which therefore influences feelings of hope and hopefulness (Baljani et al. 2011).

One of the significant predictors of hope in the present study was the marital status of subjects. These findings were similar to the results of other studies conducted in cancer and hemodialysis patients (Allahbakhshian et al. 2010; Rustoen et al. 2003). Married participants of the present study also reported higher levels of SWB, which is also consistent with past empirical research that has demonstrated that SWB is associated with marital status (Dehbashi et al. 2015; Riley et al. 1998; Taheri kharameh et al. 2013). Therefore, high SWB is associated with having high levels of hope in married individuals. Married individuals may share goals and future aspirations with their partners, which may motivate them to have higher hope to achieve their goals (Cheung 2015; Rawdin et al. 2013).

Another finding of the present study was a positive correlation between hope and educational level, meaning that patients with collegiate education showed higher levels of hope than those with a lower level of education. Dehbashi et al. (2015) also found that hemodialysis patients with higher educational levels reported higher levels of hope (Dehbashi et al. 2015).Individuals with higher educational levels may have more opportunities in the labor market. Therefore, individuals with a higher educational level seeking employment may feel more hopeful when considering a return to the workforce following a serious illness or disease such as CVD (Waynor et al. 2012). A similar rationale may be used for the finding that socioeconomic status was also a predictive factor in hope. It may be that individuals with higher socioeconomic status are more hopeful due to the additional opportunities available to them in respect of employment, education, and healthcare.

Limitation of Study

One limitation of the present study was the adoption of a convenience sampling procedure, which may limit the generalizability of the research findings. Moreover, the cross-sectional nature of the study limits our ability to determine the causal relationships among the constructs. Although the study was carried out on a completely voluntary basis and patients were given assurances of confidentiality of information, participants may not have answered in a completely non-biased manner due to the sensitivity of their condition. This is a common limitation of self-report questionnaires.

Recommendation for Future Studies

There is a need for replication of the present study with a larger, randomly selected sample drawn from various cultural subpopulations, socioeconomic levels, and broader geographic areas to strengthen the generalizability and potential implications of the present findings. Further research needs to be undertaken to explore hope and SWB in individuals specific to their particular stage of CVD (e.g., early onset to the end stages of the disease).

Longitudinal studies are needed to capture the sequence and essence of hope and SWB across the progression of the disease to identify additional variables that may be relevant. Investigating hope and SWB should consider the role of nurses' in the enhancement of hope and spirituality in those they care for—specifically psycho-social well-being and quality of life. Future studies are needed to test the validity and efficacy of nursing interventions designed to strengthen and maintain hope and SWB in individuals with cardiovascular disease.

Conclusions

Based on the current research findings, significant positive correlation exists between SWB and hope. The present study found that being a woman and having strong religiosity is related to higher levels of reported spirituality. Also, being married, having high socioeconomic status and higher level of education were associated with higher hope. Taken together, these findings suggest that hopefulness can affect SWB and vice versa. Therefore, it is important for nurses to attend to the spiritual needs of patients in their care.

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Compliance with Ethical Standards

Conflict of interest All authors declared no conflict of interest.

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